Abstract of Disclosure

It is intended to construct a reaction system whereby a peptide produced in an *in vitro* peptide synthesis system can be efficiently isolated at a high purity from the reaction system, and, at the same time, to resolve the problem of the consumption of energy in the reaction system.

A process for producing a peptide or a peptide derivative by using a reaction system of transcribing a DNA into an RNA and then translating the RNA produced or a reaction system of translating an RNA *in vitro* characterized in that a part or all of protein components constituting the transcription/translation reaction system are labeled with one of a pair of substances adhering to each other and the other substance is used as an adsorbent for capturing said labeled protein components after translating.